

**A DESCRIPTIVE ANALYSIS
OF THE OPINIONS OF COLLEGE
STUDENTS AND FACULTY
TOWARD DISTANCE LEARNING**

Masters Thesis

**Submitted to the Department of Teacher Education
University of Dayton, in Partial Fulfillment
of Requirements for the Degree
Master of Science in Education**

by

**Lois M. Cox
School of Education
University of Dayton
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approved by:

Signature of Advisor
Mary R. Sudzina, Ph.D.

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DEDICATION

Thanks to God for my gift of persistence to complete this study. Thanks also to my spouse, Phil, and my children, Brandon and Kevin, for their unconditional love. Finally, special thanks to my parents, Joseph and Dolores Sailer, who instilled the importance of education in my life.

CHAPTER I

Purpose for the Study

Students in caps and gowns, proud relatives, pomp and circumstance; they all combine to paint a scenario of the traditional college graduation. However, picture a ceremony in which students never meet the professors who taught them. How could this happen? This is possible if distance learning (DL) is the teaching method. The communication vehicle is the personal computer and modem.

A thrust of the later part of the twentieth century is the growth toward an information-driven society that focuses on technology as its means of communication. A simple trip to the video store, the supermarket, the bank, or the doctor's office can be a journey through an electronic digital world as individuals interact with information technology. The pulse of this world is dependent upon connection to a web of databases and spreadsheets that facilitate communication.

An alternative to traditional education, the DL teaching method matches technological communication with reality in the classroom. For the purposes of this study, the term DL refers to an accredited college course in which the professor matriculates the subject matter (e.g., psychology) utilizing the Internet as a teaching tool. Course lectures, discussions, test assessments, research, and assignments are available on the Internet via a course web page. This web page also includes: custom software, e-mail, audio, and visual hook-up, and a course bulletin board.

The focus of this study is the assessment of opinions of fourth year undergraduate students, and faculty members, at a private, medium-size university as to their support to incorporate a graduate level DL curriculum.

Just as communication technology has become a reality, DL will continue to be another bridge of communication between learner and educator. Long ago, John Dewey (1916) recognized that education must be based on reality for the betterment of society. Education should intertwine the process of living with the process of learning because, in essence, they are a joint process. DL fosters that goal because it substitutes the reality of technology for the classroom therefore students are reached who may have logistic or physical limitations. These students experience personal and career growth consequentially, the results benefit society.

Problem Statement

The purpose of this study is three-fold: (a) to assess the opinions of fourth year undergraduate students and full time faculty members at a private, medium-size university supporting the development of a graduate level curriculum utilizing DL as a teaching method, (b) to assess the students' and faculty's knowledge about the DL method, (c) to assess if there are any differences in the opinions between students and faculty in their participation in a DL method.

Hypothesis

For the purpose of this study there are three null hypotheses:

Hypothesis 1: There is no significant difference between the opinions of student and faculty members supporting the development of a graduate level curriculum utilizing DL as a teaching method.

Hypothesis 2: The Likert scale questionnaire reflects no quantitative difference between the students and faculty's knowledge about the distance learning method.

Hypothesis 3: There is no significant difference in opinions between students and faculty in their participation in a distance learning method.

Limitations

Descriptive statistical analysis limits generalizations to the time the study was conducted and to the individuals observed in the study. Validity limitations occur in estimating relationships between the random sample and the population from which it is drawn (Best & Kahn, 1993). The validity of the data collected in the questionnaire may not be consistent with the opinions of the sample over time.

The author chose the Likert scale questionnaire format as the tool to gather the pertinent information for the study. A limitation of the Likert scale questionnaire was the vulnerability of the variance to biasing response sets. Educational research proved the individuals had tendencies to rate high in one response on the rating scale (Isaac & Michael, 1995).

Another limitation of this study was the different sampling procedures. The faculty sample was an unsolicited response obtained via the inner office mail system at the university. Faculty responses may skew to one extreme because respondents possessed the motivation to complete and return the questionnaires on or before the due date. The student sample was solicited by university teachers in a classroom or seminar environment. The student's sample constituted a captive audience available at the time of the sample.

An additional limitation was the testing environment (e.g., noise, time constrictions, mental or physical state of the study).

Definition Of Terms

ASCII format: American Standard Code II defines the code that represents characters in computer language or binary language. An ASCII or binary format stores data as a text file. The text file has the capability to recreate the data on different types of computers.

Bulletin board: A bulletin board is an electronic message system for reading, writing and posting messages on the Internet.

Distance learning (DL): For the purpose of this study, the term distance learning refers to an accredited college course in which the professor matriculates the subject matter (e.g., psychology) utilizing the Internet as the teaching tool. Course lectures, discussions, test assessments, research and assignments are communicated on the Internet via a course Web page that may also include: custom software, e – mail, audio, and visual hook-up,

and a course bulletin board. Other terms that describe distance learning include: on-line class, cyberspace class, Internet college class, virtual classroom and electronic classroom.

Disk Operating System: Disk operation system or DOS is the file management and command processing system for the IBM or IBM compatible computers.

Electronic Mail: The electronic mail or e-mail is the mail system on the Internet. It can transport all types of information: documents, publications and computer programs. E-mail requires the storage of the data in ASCII or text format.

Hypertext markup language (HTML): HTML is the language of web documents, and is a standard for marking text so that it displays or links to other documents on different web browsers running on a wide array of computers.

Internet: The Internet is a vast array of computer networks that interconnect in a world wide information resource. Other terms that describe the Internet include: cyberspace, on-line, information super highway, surfing the net.

LAN: A LAN is a local area network in which computers connect directly via some type of cable (e.g., office building, college campus).

Modem: A modem is the hardware device for a computer to convert computer digital signals into telephone analog signals and back again. A modem accesses the Internet and may be internal to the computer or an external unit.

Network: A network refers to two or more computers that connect together in order to allow individuals to communicate and share resources.

Two-Way Interactive Video: A distance learning method where two-way audio and video communication occur in a synchronous environment. The design of this method aims to replicate a traditional classroom experience using fully interactive technologies.

WAN: A WAN is a wide area network in which LAN's connect together via lease telephone lines, satellite links, fiber optics or a variety of other technologies (e.g., city-wide network, state-wide network).

World Wide Web (WWW): The World Wide Web is a tool that allows individuals to browse, retrieve and display data (text, picture, sound, video) from the Internet. The WWW also allows the individual to access additional relevant information by following links or Webs utilizing hypertext markup language.

CHAPTER II

A Review of the Literature

The literature review is divided into three sections; (a) a description of DL methods, (b) the effects of DL in relation to the student domain, and (c) the effects of DL in relation to the faculty domain.

Distance Learning Methods

The DL method combines a wide range of technologies in order to produce the desired educational environment. A successful method effectively matches the technology and instructional tasks with the learners' needs. For the purpose of this study the author has chosen to examine three distinct DL methods:

1. Computer conferencing software
2. Two-way interactive video
3. Internet service providers

The technology of computer based distance learning starts with the desktop computer and the modem. The DL method includes a variety of peripheral devices and technological resources. The methods examined in this study uses the computer as the tool to facilitate the delivery of a DL course and not as a self-contained tutor method. There are a host of resources that can be a part of these DL methods such as: electronic mail, HTML web pages, and bulletin boards (Klemm & Snell, 1994).

1. Computer Conferencing Software

Computer conferencing software has a comparable management function in regard to IBM's Disk Operating System (DOS). The operator of a desktop computer uses DOS as the tool to manage computer operations and files. The teacher uses the computer conferencing software method as a tool to manage, coordinate and present a DL course. This forum directs the learner to additional modes of on-line or off line communication and resources that assist in mastering the task.

The University of Phoenix On-line Division is an American pioneer in DL. This on-line program began in 1989 and utilizes the personal computer and modem as a complete on-line environment (Lewis & Hedegaard, 1993). The University of Phoenix's DL method utilizes the support of a computer conferencing software called "Alex", that stands for Apollo Learning Exchange. The computer conferencing software uses an ASCII format to imitate an electronic classroom which allows a student to participate in discussions, send or download information, research a topic or receive guidance (Lewis, Hedegaard, 1993). The standard one week on-line orientation program acclimates new students to the technological capabilities of Alex. In addition, a comparable orientation program exists for new faculty. This program includes the addition of a "mentor." The mentor is a veteran DL faculty member who focuses on assistance and guidance for the novice on-line teacher. The novice teacher will "lurk" or observe the mentor's course. This lurk experience proves to be a productive way to share both teaching strategies and resources.

There is a commonly asked question in DL, "Is the student communicating on-line or is an imposture?" The University of Phoenix's answer to this question lies in the admission and graduation cognitive assessment test administered by a proctor. Generally,

the proctor is a faculty member from an educational institution within the student's geographical area. In addition, the University of Phoenix faculty generates supplementary student monitoring through occasional telephone calls to the DL student. Ideally, the University of Phoenix DL class size is kept small, usually 8 - 12 students. This limited size provides maximum communication and also aids in classroom management for the DL faculty.

Ideally, the computer conferencing software is a DL method which assists the teacher in course organization and provides the student with an asynchronous educational environment.

2. Two way interactive video

Two-way interactive video (IV) is a DL method that facilitates immediate teacher and student communication and mirrors the traditional face-to-face classroom environment. The intent of this method is to reach learners at one or more multiple sites at a specific time. There are a number of technological ways to administer IV courses. A common vehicle is the statewide academic network. This network method encompasses the use of fiber optic cables or digital telephone lines (Walsh & Reese, 1995).

The University of Northern Iowa currently offers IV classes via a state-wide network. The network consists of fiber optic cables linking 500 sites throughout the state of Iowa. A study completed in the spring of 1995 researched the students' perceptions of the IV method (Bozik, 1996). A total of 103 students participated in the study of which 76% were males and 23% were females. The students reported their teachers used a variety of teaching strategies that included: lectures, discussions, case studies, demonstrations, storytelling, simulations and role-playing. The study researched the

following factors: attendance, discussions, motivation to learn, and concept attainment.

Results of the study indicated that no measurable difference existed in the student opinions between IV and a traditional classroom experiences. Overall, 87% of the students agreed that they would participate in another IV class. The favorable results of this study reinforced the University of Northern Iowa's desire to participation in DL.

An additional technological path for an IV method is Internet videoconferencing. It is a combination of software and an inexpensive personal camera plugged into a desktop computer that facilitates the IV conference with any similarly equipped user worldwide (Fetterman, 1996). The software termed "CU-SeeMe" works in conjunction with the digitized camera to transmit the video and audio conferencing on a desktop computer monitor. The small lag in transmission time is a common complaint. However, the technology is still developing and its contribution to DL could prove to be immense.

The DL method using IV, produces a comfortable face to face educational environment and provides, immediate feedback between student and teacher in a synchronous environment.

3. Internet Service Providers

Another tool in a DL method is the contribution of the telecommunication infrastructure of American On-line. Marywood College in Scranton, Pennsylvania chooses the commercial Internet service provider American On-line (AOL) in conjunction with the Electronic University Network (EUN) as a delivery and support vehicle for DL (Mirabito, 1996). EUN serves as an independent utility service company that can aid educational institutions with the logistics and development of an on-line curriculum. EUN expertise lies in technology trouble-shooting, advising, and recruiting students (Testa, 1994; Stucky,

1995). The marriage of AOL and EUN creates the gateway for Marywood to administer and advertise their on-line DL curriculum.

The utilization of an Internet service provider often creates a variety of challenges. In the winter of 1997 the overload of clients on AOL and other Internet service providers caused frustration and annoyance within the general access of Internet services. Consequently, the university community, government, and private industry have teamed together to accelerate the next stage of Internet development in academia called the Internet 2 (Internet2.edu, 1997). The focus of the Internet 2 project is solely on academic requirements and demands for the future of higher education (Deloughry, 1996). The development of this network will enable the national and international educational community to communicate theory, practice, resources, and expertise. The key element in the design of the Internet 2 is the gigabit capacity point presence or the "gigapop." This is a high capacity point of interconnection with an existing campus network, Internet, and other Internet 2 participants (Internet2.edu, 1997). The participating college or university will most likely need to update their current computer network systems in order to connect to the gigapop regional or state system. This will require a membership fee (Wilson, 1997). The development of the Internet 2 could prove to be a vehicle for a future DL method.

Another future platform for the DL teaching method will be television cable access. In September 1996, two large cable companies launched the nation's first cable modem service in two test cities. Since that date, cities have been joining the expanding fiber-optic cable lines every month. Internet access over the cable lines is at speeds hundreds of times faster than the conventional analog modem (Krantz, 1996). Experts

agree that problems exist with this transmission system. However, the potential for interactive television in our homes is enormous.

The future of DL is eminent due to the development of new, and the improvement of existing, technologies. Colleges and universities wrestle with the pivotal question of which technologies to use for their DL method. However, the selection is immaterial unless the faculty effectively uses the appropriate technology to facilitate the students' educational accomplishments.

Effectiveness of Distance Learning

The review of literature uncovers a wide array of factors relating to the effectiveness of DL. In this study, the author narrows and groups the factors into two domains: student and faculty. The classification of "effectiveness" is pertinent to factors that influence both teaching and learning. This discussion examines common questions from students and educators about DL.

Student Domain

"Is the DL teaching method effective for the learner?" This is a common query in the student domain. A significant amount of research indicates that "no significant difference" in achievement levels exists between distance and traditional learners (Johnstone, 1991). Tjaden and Martin (1995) conducted a study that substantiates this claim. Their study consisted of 28 students in a college level computer course. The professor randomly assigned students to one of two groups. The control group received the course material in a traditional lecture method. The treatment group utilized a computer assisted learning tutorial method in a computer lab. A pre-test on existing

computer knowledge demonstrated similar results for all of the students in the study. The average post-test results indicates “no significant difference” in the amount of material learned in both groups exists. However, the difference in the time necessary to accomplish the same amount of learning in this experiment was an average of 38% savings when using the computer. In addition, 71% of the treatment group preferred a computer instruction method to a lecture method. The efficient use of time by the treatment group was the instrumental finding in this study. In conclusion, although content attainment in this study proves that “no significant difference” existed between traditional lecture and computer-assisted learning, there was a difference in time-savings for the student.

“What about the development of the students social skills?” is another question concerning the distance learner. Insufficient socialization is a common criticism of DL effectiveness for the student (Verduin & Clark, 1991). The social atmosphere outside the classroom of a college campus promotes social interaction for the full-time students. The literature reveals the DL student, in general, is a part-time adult student who usually has an independent social life apart from the college environment.

Often logistics or physical limitations become educational stumbling blocks for students. Willis (1994) suggests family obligations, civic responsibilities, and limited free time can hinder enrollment in a traditional classroom. DL eliminates a number of possible restrictions governed by the traditional classroom. The asynchronous classroom promotes convenience, accessibility, and flexibility for a hectic adult learner life style. The course Web page lists the assignments, on-line discussion dates, resources and project examples. DL students can choose to access this information at any time or place.

The social atmosphere is similar inside the DL classroom and the traditional face-to-face classroom. Communication dominates both avenues of education. The instructional tool usually dictates the platform of communication in a DL method, whether it is written communication in computer conferencing software, or verbal communication in IV, or a combination. In the computer conferencing method, the distance learners' race, creed, physical appearance and, social status are usually unknown. The asynchronous DL classroom often results in a holistic educational environment with a social cross section of diverse ages, professions, cultures and religions. The literature profiles the distance learner with the motivation to succeed and accomplish the educational goal. This personality trait can make any educational environment a success.

Watabe and Hamalainen (1995) discuss social factors that relate to the effectiveness of an asynchronous DL method at the British Open University. A group of 24 students from four different countries collaborated on activities such as: joint document production, role-playing, and exploring a virtual world. Watabe and Hamalainen believe the collaborative approach fosters motivation, enjoyment, and feelings of togetherness (Kimball, 1995). The e-mail message exchange between students and teacher occasionally causes confusion and misunderstanding because immediately clarification is not always possible. An electronic face icon on the message helps to overcome the lack of face to face communication. The students feel that collaboration is an effective use of their time (average response 7.0 out of 10.0) and it improves their motivation (average response 7.8). The literature substantiates a healthy social atmosphere inside the DL classroom.

Another common question of the distance learner is "Can gender be a factor that relates to the effectiveness of DL?" Robertson, Calder, Fung, Jones, and O'Shea (1995)

investigated gender differences in attitudes toward computers. They reviewed 98 studies and discovered 48 in which males' attitudes were more positive, 14 in which females were more positive than males, and 36 which found similar attitudes toward computers by both. The weight of evidence from recent research suggests that males have a more positive attitude toward computers than females. In addition, they use them more often. Loyd, Loyd, and, Gressard (1987) found that the amount of computer experience is directly related to a positive attitude toward computers.

Faculty Domain

The faculty domain reviews factors effecting faculty and the DL teaching environment.

"Do DL faculty receive training and support?" is a common question from the faculty members. Many colleges and university's set-up DL departments and they are responsible for recruiting, training and supporting the DL faculty. The University of Wyoming has veteran DL faculty mentors who coach novice faculty regarding technical support and pedagogical strategies that have proven successful in their personal experience (Shaeffer & Farr, 1993). In additional, the Internet produces a host of resources for faculty support. Teacher networks, scholarly discussion groups, and newsgroups are all forums which advise and share resources with other colleagues.

"What DL strategies are effective?", is another question from faculty members. The literature suggests that DL strategies use traditional classroom strategies such as: class discussions, peer teaching, case studies and collaborative learning. The faculty alters these implementations according to the method of presentation. A common pedagogic belief among DL faculty centers on facilitating the student in the process of learning verses

mere proliferation of facts and subject matter. The technological emphasis is less on knowledge for its own sake and more on the process based on utility (Rutherford & Grana, 1995). A teacher directs the student to use the technology for location of information (Albrektson, 1995). Individual or collaborative learning occurs in the assimilation of the knowledge in the learning task. The information becomes knowledge when the individual acquires and effectively uses the knowledge for a desired result (Simonson & Thompson, 1994).

The technological tools accessible on the Internet are strategies used to encourage and foster critical thinking skills. The course Web page is a popular organizational tool. The Web page dispenses the wide range of materials for every class (Partee, 1996). The hypertext format promotes the wealth of available resources on the Internet (Scigliano, Levin & Horne, 1996).

“Is there a substantial time commitment to change to DL methods?”, is another question from faculty members. The DL faculty admits to a greater amount of time spent in planning the course design. The ideal DL course incorporates a mixture of technological tools for the student to explore. The correct technological matches and teaching strategies remain challenging for the DL faculty. Faculty collaboration is a solution to conserve time, share teaching strategies, on-line resources, and build competence. Local or on-line faculty networks join colleagues around the world. The University of Wyoming implements an evaluation program for both the students and faculty member. The evaluations produce the necessary data to substantiate and implement any changes in the methods and designs. A total of 90% DL students would take another DL course and would recommend one to a friend. Rutherford and Grana, (1995) discuss some common DL fears and concerns of

faculty: the fear of change, time commitment, appearing incompetent, and the belief they are too old to change teaching methods. The literature substantiates computer technology as a reality in the educational and social environment. Educational and social changes are inevitable and often entails a commitment of time above and beyond the existing job requirements. Often added rewards or incentives can be offered from the university to entice the faculty to join the DL method.

The literature supports the potential of the DL method in universities for these reasons: (1) DL offers an educational choice suited for the adult learners' life style. (2) DL student achievement scores demonstrate "no significant difference" between traditional student achievement scores. (3) DL optimizes the unlimited educational resources on the Internet. However, there are also constraints to DL implementation in universities for the following reasons: (1) Faculty biases and concerns including: additional time, technology training, support, and compensation. (2) University expense to up-grade hardware and Internet fees. (3) University decisions in choosing the correct technological mix to complement the faculty teaching strategies. A key to a successful DL method is the collective ability of the university administration and faculty to identify and resolve challenges and monitor and support progress.

CHAPTER III

PROCEDURES

Subjects

For the purposes of this study the author divided the sample population into two categories: undergraduate students and full-time faculty members at a private, four-year, medium-sized university in a mid-western city. The sample consisted of fourth year undergraduate students that are potential DL students and of faculty members that are potential DL teachers.

The author referred to the Table for Determining Needed Size of a Random Sample with a 95% Level of Confidence (Isaac and Michael, 1995) to determine the number of students and faculty needed for a random sample for this research. The following information reflected the finite population at the university and the suggested random sample according to the table.

Student		Faculty	
Finite Population	1225	Finite Population	404
Random Sample	291	Random Sample	196

Setting

University

This author selected a private, Catholic, mid-sized, university, to obtain the sample for the study. This university did not advertise any courses using DL in the current composite of courses. The university offers more than 70 undergraduate and 60 graduate

programs in five accredited divisions: arts and sciences, business administration, education, engineering, and law.

Community

The university is located in a mid-western city. According to 1994 US Census, the population of the city was 178,540 people. The economy of the city maintains a strong manufacturing influence and has grown by 25 percent over the past 12 years. The university is in the southeastern part of the city where the major employers are located (e.g., manufacturing, governmental and computer technology). It is nestled between an affluent primarily white neighborhood and a lower income, culturally diverse neighborhood.

Data Collection

Construction of the Questionnaires

The questionnaire was the primary vehicle of data collection. The Likert scale used in the questionnaire is a valid measure in educational opinion gathering research (Best & Kahn, 1993).

A literature search was conducted to establish content validity for the statements in the questionnaire. Ten statements were composed for the student questionnaire (See Appendix A), and ten similar statements were composed for the faculty questionnaire. (See Appendix B). The statements expressed the common issues recognized in the literature (Gardner, Discenza & Dukes, 1993). The author used a modified Likert scale questionnaire. The questionnaire instructed the respondent to select one out of four categories to assess the statements. The categories ranged from strongly agree, agree, disagree and strongly disagree. The scale gathered “a forced response” because there was

no undecided point or category for the respondent to choose. The Likert scaling method assigns a value to each of the four points to obtain a total score as well as individual item scores (Best & Kahn, 1993).

<u>Category</u>	<u>Scale Value</u>
Strongly Agree	4
Agree	3
Disagree	2
Strongly Disagree	1

A total score of 40 is the most favorable response possible and a total score of 10 is the least favorable response possible. The questionnaires obtained quantitative data from the sample in this study.

This author administered a field test for the student questionnaire to approximately 22 graduate students at the university in the fall of 1996. The results showed there were misinterpretations in the meaning of DL. This author also received feedback on the faculty questionnaire from several faculty members at the university involved in research design.

The final drafts of the questionnaires incorporated the constructive comments and an explicit definition of DL for the purpose of the study. A variety of factors relating to demographically data was also added to the questionnaires (e.g.: age, gender, computer owner, awareness of DL).

Administration of the Questionnaires

Student Questionnaires: Student questionnaires were administered in classes selected at random by faculty members from the School of Business Administration and the College of Arts and Sciences. This author administered questionnaires to students in two student teaching seminars in the School of Education. A total of 259 fourth year undergraduate students responded to this questionnaire.

Faculty Questionnaires: The University's Provost's Office produced a list containing the names and campus addresses of all full-time faculty. The first 300 names were selected from a total of 404 names. The sum of these names consisted of 215 males and 85 females. The faculty questionnaire was accompanied with a transmittal letter (See Appendix C) and a return envelope addressed to the author's thesis advisor.

Questionnaires and cover letters were mailed via the inner-office mail system at the university. Responses were returned via inner office mail to the attention of the authors' thesis advisor. A total of 141 full-time faculty responded to this questionnaire.

CHAPTER IV

RESULTS

Presentation of the Results

Sample Results: A random sample was not obtained. The author claimed a non-probability sample to evaluate the research.

Student		Faculty	
Finite Population	1225	Finite Population	404
Random Sample	291	Random Sample	196
Sample Results	259	Sample Results	141

Total Sample Results: 400

Questionnaire Results: The results of the Likert questionnaires were analyzed in terms of chi square tests and presented in tables and figures.

Hypothesis 1: There is no significant difference between the opinions of student and faculty members supporting the development of a graduate level curriculum utilizing DL as a teaching method. Hypothesis 1 refers to statement #10 on the questionnaires. The test results were $\chi^2(3, N = 391) = 6.482, p > .05$, shown in Table 1. The results indicated no significant difference between opinions of faculty and students, therefore the null hypothesis 1 was accepted. Faculty and students agreed it is necessary for higher education to include DL in the graduate level curriculum.

<Insert Table 1 here>

Hypothesis 2: The Likert scale questionnaire reflects no quantitative difference between the students and faculty's knowledge about the distance learning method.

Hypothesis 2 refers to a demographic question on the questionnaires. The test results were $\chi^2(1, N = 388) = 59.990, p < .001$, shown in Table 2. These results showed a significant difference between faculty and students. Therefore the null hypothesis was rejected. The faculty has a higher awareness level about DL than students.

<Insert Table 2 here>

Hypothesis 3: There is no significant difference in opinions between students and faculty in their participation in a distance learning method. Hypothesis 3 refers to statement # 9 on the questionnaires. The test results were $\chi^2(3, N = 380) = 21.767, p < .001$, shown in Table 3. These results indicated a significant difference between faculty and students therefore the null hypothesis 3 was rejected. If given a choice, the faculty would not chose to teach a DL graduate level course. If given a choice the students would chose to take a DL graduate level course.

<Insert Table 3 here>

Discussion of the Results

Cook (1965) suggested the primary aim of descriptive research was to answer the general question, "What exists?" This discussion begins with general statements concerning the study results and then focuses on specific variables and how they correlate with each other as well as to the literature.

The questionnaires accurately gathered the opinions of the students and faculty it intended to collect. A true random sample was not received, however the total sample size of 400 participants constitutes a size worthy of statistical analysis and interpretation.

The results for hypothesis 1 support the null hypothesis. The faculty and students agreed it is necessary for higher education to include DL in the graduate level curriculum.

The interpretation of these results suggests that higher education must meet the needs of the society it intends to educate. The literature search also proved consistent with the results of the study.

The results for hypothesis 2 do not support the null hypothesis. The faculty in this sample possessed a greater knowledge of the DL method than the students surveyed. The interpretation of these results indicate that faculty are well read on alternative educational pedagogy. Although the students were less aware of the DL method they would choose to take a DL course as indicated in the results from hypothesis 3. Both results suggest a positive correlation between the students' knowledge of the DL method and their desire to take a DL course.

The results for hypothesis 3 do not support the null hypothesis. Students would choose to take a DL graduate level course and the faculty would not choose to teach a DL graduate level course. The interpretation of these results suggests that future DL students were present in the sample population. However future DL faculty was not present in the sample population at the time of this study. The faculty acknowledges the need for a DL graduate level curriculum as indicated in the results of hypothesis 1 nevertheless, it appears they do not choose to teach a DL course. The literature search substantiates the results of this hypothesis and suggests a variety of DL issues exist for faculty members including: faculty training, administration support, additional hours of preparation and fear of technology. The results of the faculty questionnaire indicated an overwhelming need for faculty training and support in the DL method (Figure 1). These results suggest a negative correlation between the faculty's need for training and support and their desire to teach a DL course.

DL teaching methods are relatively new and appear to constantly change with the advent of new technology. This university currently has no DL classes listed in the current composite and have faculty who are apprehensive to teach a DL course.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

Problem Statement

The purpose of this study is three fold: (a) to assess the opinions of fourth year undergraduate students and full time faculty members at a private, medium-size university supporting the development of a graduate level curriculum utilizing DL as a teaching method, (b) to assess the students' and faculty's knowledge about the DL method, (c) to assess if there were any differences in the opinions between students and faculty in the participation in a DL method.

Hypothesis

For the purpose of this study there are three null hypotheses:

Hypothesis 1: There is no significant difference between the opinions of student and faculty members supporting the development of a graduate level curriculum utilizing DL as a teaching method.

Hypothesis 2: The Likert scale questionnaire reflects no quantitative difference between the students' and faculty's knowledge about the distance learning method.

Hypothesis 3: There is no significant difference in opinions between students and faculty in the participation in a distance learning method.

Procedure

This study conducted descriptive statistical analysis at a private, medium-sized university in a mid-western city. The subjects consisted of four-year undergraduate students and full-time faculty members. The author designed a student questionnaire and similar faculty questionnaire containing 10 statements on the topic of distance learning. A literature search established content validity for the statements on the questionnaire. The questionnaires were field tested at the university by graduate students and faculty. Then the author sought approval from the university's Provost Office to conduct the study at the university. The sampling procedures differed between the students and faculty. A total of 259 student questionnaires were anonymously obtained in classroom or seminar environments. A total of 300 faculty questionnaires were distributed via an inner office mail system at the university. A letter of transmittal accompanied the faculty questionnaire along with a return envelope to the attention of the authors' thesis advisor. A total of 141 anonymous faculty questionnaires were returned in the inner office mail system at the university.

Results

The questionnaire gathered the opinions of the students and faculty it intended to collect. The results of the Likert questionnaires were analyzed in terms of chi square tests and presented in tables and graphs. A random sample was not received and the author claimed a non-probability sample to evaluate the research.

Hypothesis 1 results indicated that both faculty and students agreed on the necessity for higher education to include DL in the graduate level curriculum. Hypothesis 2 results indicated that faculty has a higher awareness level about DL than the students in

the sample. Hypothesis 3 results found that students would choose to take a DL graduate level course, however faculty would not choose to teach a DL graduate level course.

Conclusion

The fields of technological communication and DL have undergone unprecedented growth in recent years. Educational institutions recognize not only the importance but also the necessity of technology as a facilitator for teaching and learning. DL is poised to play a pivotal role in education. The following conclusion substantiates the study's results as meaningful contributions toward DL research.

A result of this study indicates faculty and students agreed that higher education should include a DL graduate level curriculum. These findings correlate with the literature review that identifies DL as an effective pedagogy for students to access higher education. The asynchronous DL classroom is an asset for a student returning to school who has a host of obligations, geographical or physical restraints. Traditional, on-campus classes dictate time and place restrictions on the adult learner. The DL method eliminates physical boundaries because the student chooses the time and place to access the course material. This type of educational environment meets the needs for a growing number of adult learners. The author assumes these DL students will benefit society.

Another result of this study suggests faculty in the sample possessed a greater knowledge of the DL method than the students surveyed. These results solidify one of the purposes for this study. The purpose was to assess and inform a potential graduate level population on the DL method. The term DL was defined on the questionnaires. The author assumes the students possess a greater knowledge of the DL method as a result of

their participation in the study. Consequentially, this study suggests a contribution in the education of the student sample. Further assumption concludes the faculty DL awareness is due to a resourceful and astute group of individuals well read on current educational pedagogy.

The faculty acknowledgment for the need of DL and their awareness of the method are only small pieces of the DL puzzle. The appropriate faculty development and support programs are also instrumental pieces. Willis (1994) notes the ultimate success or failure of the DL method is inextricably tied to the enthusiasm and continuing support of the faculty. Additional results of this study indicate the faculty in the sample would not choose to teach a DL course however the students in the sample would choose to take a DL course. These results confirmed the potential DL student was present in the sample and the potential DL faculty was not present in the sample at the time of this study. Hirschbul and Faseyitan (1994) suggest a university implement a faculty technological training program prior to launching a technological project. This program could also address faculty needs including technological concerns, additional planning time, and added incentives. Additional advice for beginning a DL curriculum suggests the educational institution set a clear and concise mission statement (Willis, 1994). A mission statement will inform faculty on the purpose, the design, the aim and the direction of the DL curriculum. The author speculates the implementation of a proper faculty support and training program together with a clear and concise mission statement would boost faculty desire and interest in the DL method. This author believes information gathering on existing opinions and knowledge from faculty and students is a good beginning for the curriculum decision makers and essential for the success in implementing a DL teaching

method. The results of this study are intended to contribute to future DL research.

Theoretically, the DL method will exist and develop because the adult learner in society dictates the need for this method.

Recommendations

The questionnaires contained a variety of issues worthy of study at a later date.

The following recommendations review three popular topics found in the literature search.

An effective DL course begins with careful planning and a focused understanding of course goals for the teacher and student. The DL faculty admits to more time spent in planning and revising due to the rapid advancements in technological development. The literature proved consistent with the results of this study (Figure 1) concerning faculty agreement for a required on-going faculty training and support program. Future research centered on the faculty needs and opinions would be worthy of study at a later date.

<Insert Figure 1>

There was a substantial amount of research examining gender verses technology usage. This study acknowledges the sample was biased because more males received the questionnaires than females. However, the literature proved consistent with the results of this study (Figure 2) concluding more males use the computer than females. The gender issue would be worthy of study at a later date.

<Insert Figure 2>

A third area of inquiry might be to examine what areas of the curriculum might be the most advantages places to start and implement a DL program. The author suggests

research on existing curriculums at universities and colleges currently utilizing DL methods.

There are many exciting challenges ahead in the field of DL. These challenges will be on going with the approach of new technologies. The author believes the importance of higher education is now more eminent and ultimately more assessable for the adult learner thanks to DL method.

Table 1: It is necessary for higher education to include a DL curriculum.

GROUP					
Frequency					
Row Percent					
	SD	D	A	SA	Total
FACULTY	9	21	77	28	135
	6.67	15.56	57.04	20.74	
STUDENTS	11	65	141	39	256
	4.30	25.39	55.08	15.23	
TOTAL	20	86	218	67	391
Percent	5.12	21.99	55.75	17.14	100.00
Chi-Square	DF	VALUE	Prob		
	3	6.482	0.090*		

Note. Frequency Missing = 9

*p > .05.

Table 2: I am Aware of DL.

GROUP			
Frequency			
Row Percent			
	YES	NO	Total
FACULTY	116 86.57	18 13.43	134
STUDENTS	117 46.06	137 53.94	254
TOTAL	233	155	388
Percent	60.05	39.95	100.00
Chi-Square	DF 1	VALUE 59.990	Prob 0.00*

Note. Frequency Missing = 12

*p < .001.

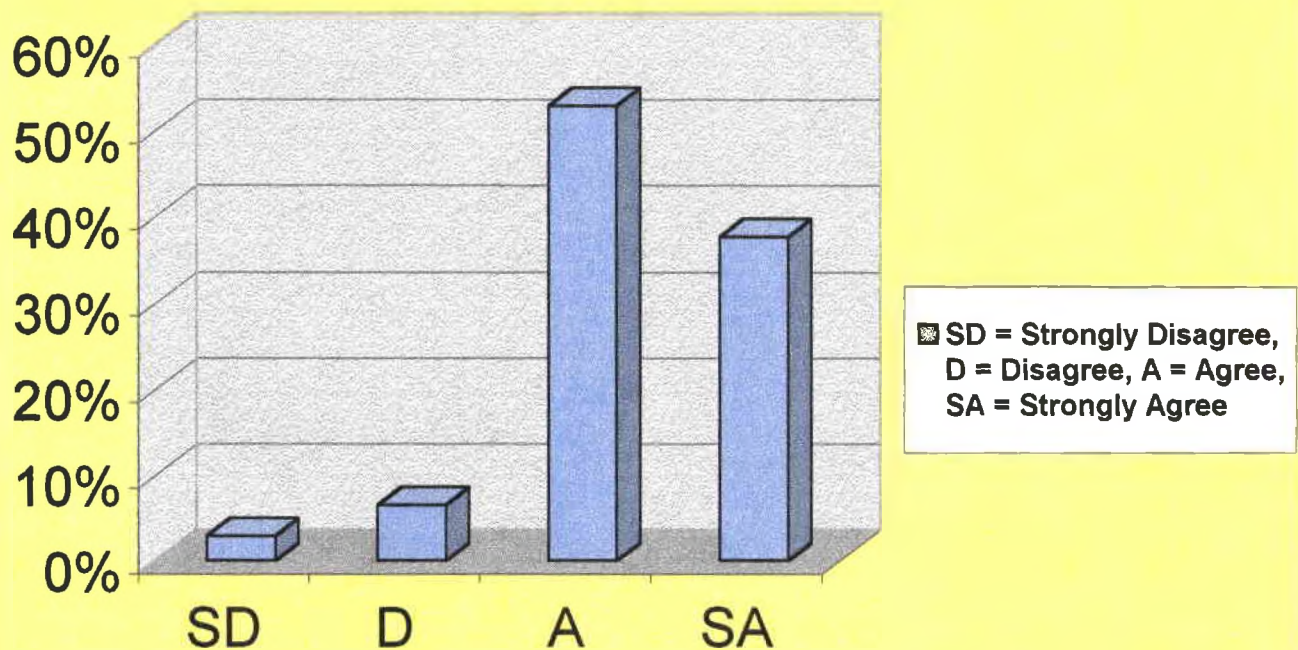
Table 3: The student would choose to take a DL graduate level course.
The faculty would choose to teach a DL graduate level course.

GROUP					
Frequency					
Row Percent					
	SD	D	A	SA	Total
FACULTY	32	56	33	7	128
	25.00	43.75	25.78	5.47	
STUDENTS	26	94	101	31	252
	10.32	37.30	40.08	12.30	
TOTAL	58	150	134	38	380
Percent	15.26	39.47	35.26	10.00	100.00
Chi-Square	DF	VALUE	Prob		
	3	21.767	0.00*		

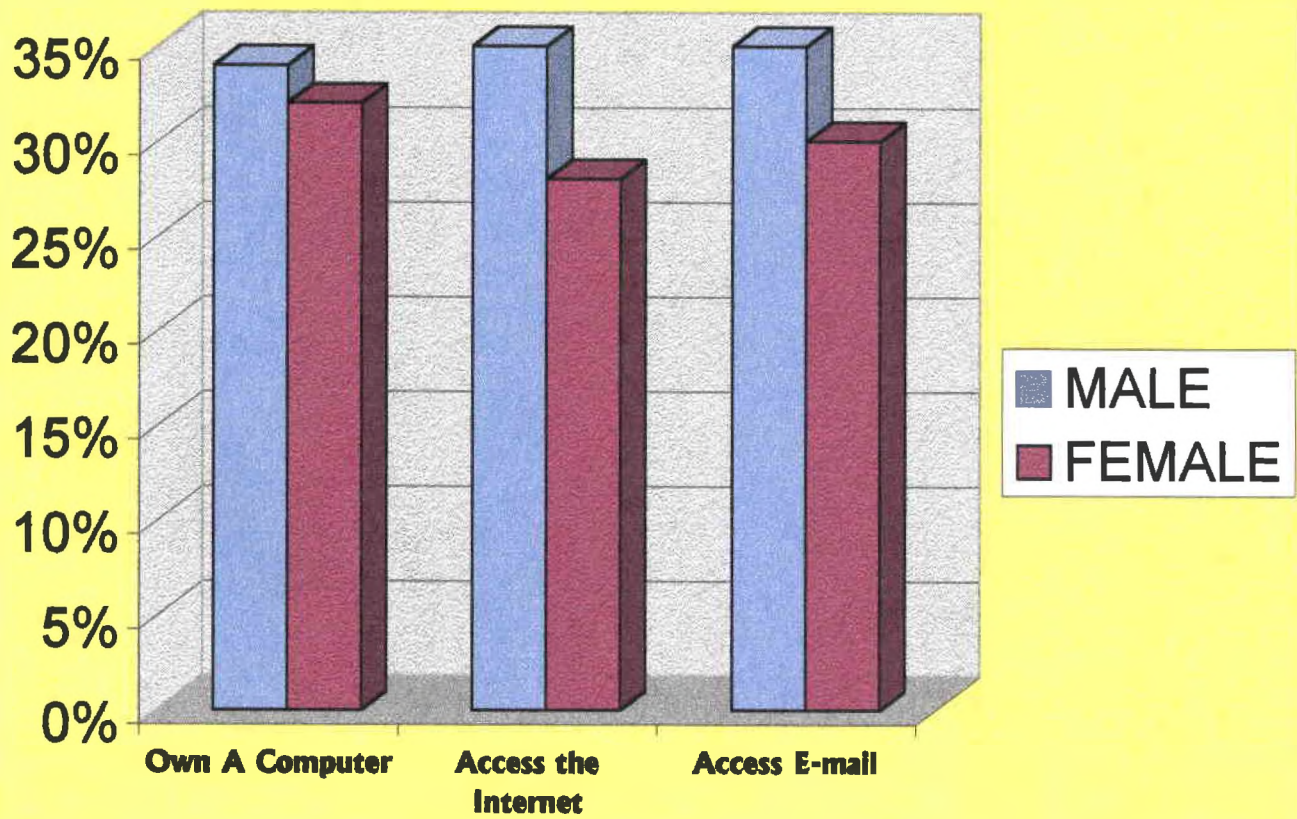
Note. Frequency Missing = 20

*p < .001.

On-going Faculty Training Programs are Necessary



Gender Computer Factors



The term **DISTANCE LEARNING** refers to an accredited college course in which the professor administers the subject matter (for example psychology) utilizing the Internet as the teaching method. The lectures, discussions, test assessments, research and assignments are communicated via a private web page, custom software, audio/visual hook-up, and/or private bulletin board over the Internet.

I have taken a college course using distance learning: YES ☐ NO ☐

Strongly agree = SA, Agree = A, Disagree = D, Strongly Disagree = SD

1. The Internet technology will become a requirement for our educational environment.
SA ☐, A ☐, D ☐, SD ☐
2. I think a distance learning course would improve my written communication skills as most assignments are written.
SA ☐, A ☐, D ☐, SD ☐
3. An accredited computer/Internet training workshop should be a prerequisite for the distance learning course.
SA ☐, A ☐, D ☐, SD ☐
4. My attendance in a distance learning course would be better than my attendance on a college campus because I would be able to access the course information at any time throughout the day/night.
SA ☐, A ☐, D ☐, SD ☐
5. A deciding factor for enrollment in a distance learning course would be the convenience of taking the course at home or at work wherever I have access to a computer/modem.
SA ☐, A ☐, D ☐, SD ☐
6. I like the fact that no one can judge your appearance in a distance learning course.
SA ☐, A ☐, D ☐, SD ☐
7. Distance learning course experience would give me an advantage in the job market.
SA ☐, A ☐, D ☐, SD ☐
8. I think it is the responsibility of our educational system to offer alternative methods for students to access higher education.
SA ☐, A ☐, D ☐, SD ☐
9. If given a choice I would choose to enroll in a distance learning graduate level course.
SA ☐, A ☐, D ☐, SD ☐
10. In order for higher education to remain current & competitive in the future it is necessary for the curriculum to include distance learning.
SA ☐, A ☐, D ☐, SD ☐

DISTANCE LEARNING EDUCATIONAL FACULTY QUESTIONNAIRE

The term ***DISTANCE LEARNING*** refers to an accredited course in which the professor administers the subject matter (for example psychology) utilizing the Internet as the teaching method. The lectures, discussions, test assessments, research and assignments are communicated via a private web page, custom software, audio/visual hook-up, and/or private bulletin board over the Internet.

Please check applicable box ☒:

Gender: Male ☐, Female ☐ Age: 21-30 ☐, 31-40 ☐, 41-50 ☐, 51-60 ☐, 61 and Above ☐

Education: Completed Doctoral Degree: YES ☐ NO ☐, I plan to seek additional education: YES ☐ NO ☐

Family Status: I am Married: YES ☐ NO ☐, I have children living at home: YES ☐ NO ☐

Computer: I own a computer: YES ☐ NO ☐

If yes, do you currently access the Internet at home? YES ☐ NO ☐

If yes, do you currently have an E-mail account at home? YES ☐ NO ☐

Completed Years of Teaching: 0 - 5 years ☐, 6 - 10 years ☐, 11 - 15 years ☐, 16 + years ☐

Distance Learning: I am aware of the distance learning teaching method: YES ☐ NO ☐

I have taken a college course using distance learning: YES ☐ NO ☐

I have taught a college course using distance learning: YES ☐ NO ☐

The following statements represent opinions. The topic is Distance Learning curriculum at the Graduate Level. Your agreement or disagreement will be determined on the basis of your particular belief. Please check your position on the scale as the statement first impresses you. Indicate what you believe, rather than what you think you should believe. PLEASE USE THE FOLLOWING CODE:

Strongly agree = SA, Agree = A, Disagree = D, Strongly Disagree = SD

1. The Internet technology will become a requirement for our educational environment.
SA ☐, A ☐, D ☐, SD ☐
2. An additional monetary incentive should be offered to tackle new challenges for distance learning faculty.
SA ☐, A ☐, D ☐, SD ☐
3. On-going training and/or mentor programs are necessary for distance learning faculty.
SA ☐, A ☐, D ☐, SD ☐
4. I believe the attendance in a distance learning course would be better than attendance in a traditional classroom course because the student could access the course information any time throughout the day/night.
SA ☐, A ☐, D ☐, SD ☐
5. A deciding factor to teach a distance learning course would be the convenience of teaching the course at home or wherever I have access to a computer/modem.
SA ☐, A ☐, D ☐, SD ☐
6. I like the fact that no one can judge anyone's appearance in a distance learning course.
SA ☐, A ☐, D ☐, SD ☐
7. I believe the educational methodologies proven effective in traditional situations can be implemented in distance learning.
SA ☐, A ☐, D ☐, SD ☐
8. I think it is the responsibility of our educational system to offer alternative ways for students to access higher education.
SA ☐, A ☐, D ☐, SD ☐
9. If I were given a choice I would choose to teach a distance learning graduate level course.
SA ☐, A ☐, D ☐, SD ☐
10. In order for higher education to remain current & competitive in the future it is necessary for the curriculum to include distance learning.
SA ☐, A ☐, D ☐, SD ☐

Lois M. Cox
P.O. Box 582
Tipp City, OH 45371

PHONE:
FAX:

University of Dayton
300 College Park Dr.
Dayton, Oh. 45469

January 21, 1997

Dear Faculty Member,

Currently, I am enrolled in a graduate program in the School of Education at the University of Dayton. I am conducting research on the topic of "Distance Learning" for my thesis. The purpose of my study is to determine the opinions of faculty and students for the development of a graduate level curriculum utilizing a distance learning teaching method.

I would greatly appreciate your assistance in the completion of the attached ten item questionnaire. All responses are anonymous and the questionnaire should take less than three minutes to complete.

For your convenience I have enclosed a return inner-office envelope addressed to Dr. Mary Sudzina in the Education Department who is my thesis adviser. In order for this data to accurately reflect faculty opinions, I request the questionnaires are returned by January 31, 1997.

The results will be submitted to the Provost's Office with the assistance of Mr. Michael Rayle from Instructional Computing Group. Thank you for your timely and honest response.

Lois M. Cox
Adjunct Faculty
Edison Community College

cc: Dr. John Geiger, Provost
Dr. Patricia First, Ed.D. Dean, School of Education
Mr. Michael Rayle, Instructional Computing Group
Dr. Mary Sudzina, School of Educational

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